

1

Dr. Thorne Thorne's Report to the Local Government Board on the Sanitary Condition of the Village of Biddenden, in the Tenterden Rural Sanitary District, with special Reference to the recurring Prevalence of Diphtheria in the Village.

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BIDDENDEN, in Kent, is a parish in the Tenterden rural sanitary district. It had, in 1871, a population of 1,419, and it consists to a great extent of small hamlets and isolated groups of houses spread over an area of about 7,200 acres. By far the largest aggregation of dwellings is at the so-called village of Biddenden, which is ascertained to have a population of nearly 380, and, except when otherwise stated, it is to this village that this Report relates.

Biddenden is a compact little village; the houses lie, as a rule, close together, and they occupy two so-called streets; one, which runs north and south, is the highway from Headcorn to Tenterden, and is generally known as North Street; the other, or Church Street, runs off from the former for a short distance in a westerly direction. The village lies on Weald Clay, and has a steady fall towards the west.

Sanitary Circumstances.

The *water-supply* for the village is very scanty, and, as a rule, unfit for human consumption. I only found two wells, both of which are believed to be about 30 feet in depth. Their depth seems to be simply for storage capacity, as their water must essentially be surface water. One is obviously fouled by soakage of filth from the surrounding soil. The other has the reputation of affording a wholesome supply, but it can only be resorted to by the favour of the publican, on whose premises it is situated. Ponds form the general water-supply. Some of these are so foul that it is almost incredible that they can, as stated, be used for any household purposes, and even the best ones to which the public have access contain a good deal of decaying vegetable matter, and the water they afford is at times greatly discoloured. One, which is stated to be largely resorted to, is also in dangerous proximity to a ditch containing stagnant sewage and slaughter-house refuse. In some instances, too, even these improper supplies have to be procured at a considerable distance from the houses of those seeking water.

The village has no proper system of *sewerage and drainage*. On the south side of Church Street the houses drain into a large brick culvert originally constructed for the purposes of road drainage, but the house drains leading to this culvert are of the most faulty construction, and occasion considerable nuisance. Running behind the houses and in actual contact with the walls and foundations is a broad, open, irregularly-bricked channel, with here and there a species of cesspit containing offensive semi-solid matters; at one point a closet fitted with a pan leans against a cottage and drops its contents into this channel, and in more than one place the sewage is conveyed by imperfect and obviously leaky drains under the cottages, rendering their interior damp, foul, and unfit for human habitation. Ultimately the sewage gets into a ditch at the west of the village, where it is joined by another offensive sewer ditch.

On the north side of the same street the house drainage mainly finds its way into ditches which are so foul and in such proximity to the dwellings that they must of necessity be a source of grave nuisance and of danger to health.

In the remainder of the village the drainage is almost exclusively into open channels and ditches situated either by the road side, or around and close to the houses.

The means of excrement disposal is almost invariably the common privy with a sunk brick vault. In at least one instance, however, a closet was seen which had been constructed with the intention of its being also used as a receptacle for ashes. It had a sunk vault which had been drained. The principal object of a closet which receives ashes is that its contents should be always dry, and if, with this point held in view, the whole structure were kept above the level of the surrounding soil, and some dry material were regularly mixed with the excreta so as to absorb all wetness, the necessity for draining the privy—at best but an imperfect remedy for the wetness of contents which should not exist—would not arise.

Some of the privies are in dangerous proximity to the houses—in certain cases actually adjoining them—or even under the same roof.

Prevalence of Diphtheria.

Diphtheria has been very prevalent and very fatal in Biddenden village. So far as can be ascertained at this distance of time, a child, whose attack did not appear to be due to infection from any prior case, sickened in the autumn of 1875, in one of a row of houses where the sanitary circumstances are very defective. About two months later, namely, early in 1876, the disease re-appeared in the same house, where it attacked six children. Two other attacks, one a fatal one, occurred in the last quarter of the same year at a house in Church Street, where the conditions of drainage were and still remain specially offensive. No further cases appear to have been reported until January 1877; but during this and the three following months, 17 more cases occurred, and five of them terminated fatally. Early in 1878 the disease again appeared in the village, seven children suffering, and one dying, from it. Up to the present date the disease has since then not again made its appearance, but between October 1875 and March 1878, diphtheria has been a constantly recurring cause of disease and death in this little village; 33 cases and 7 deaths having occurred there. Although there can be but little doubt that personal infection materially contributed to the spread of the disease, yet an inspection of the village also shows that the diphtheria was specially prevalent and fatal on premises where the air was notably befouled by sewer and excremental nuisances, such as I have described. During each of the three outbreaks in 1876, 1877, and 1878, some cases occurred in houses situated in other parts of Biddenden parish. The earliest of these outlying cases were always in children, and without associating every attack directly with prior attacks in the village, yet infection derived from thence was, doubtless, a main cause of the disease. Grouping all the cases together which have occurred in the parish during the period referred to, it appears that there have been, including one fatal case of so-called "croup," 64 attacks and 14 deaths.

The sanitary circumstances of Biddenden village are, quite apart from any prevalence of disease, such as to call for immediate remedial measures; but when these conditions are viewed in connection with the recurring and fatal outbreaks of diphtheria which have occurred in the village, their long continued existence would imply that their gravity has hitherto been but imperfectly appreciated by the Sanitary Authority. These conditions have already been brought under the notice of the Sanitary Authority by their Medical Officer of Health, and they should no longer be allowed to remain.

June 20th, 1879.

R. THORNE THORNE.

Recommendations.

1. The Sanitary Authority should without delay seek skilled advice as to the best method of providing Biddenden village with a proper water supply.
2. Steps should also be adopted for providing the village with efficient means of drainage.
3. All privies now causing nuisance should be dealt with as such, and be replaced by some improved closet. In determining what form of closet is best adapted to the requirements of the district, the Authority should consult the Board's Report on the means for Preventing Excrement Nuisances. In any closet constructed for the reception of ashes, earth, or other dry material as well as excreta, the following points should be insisted on :—1. The floor of the privy should be raised above the level of the surrounding soil. 2. If a pit is contemplated it should be limited to the space between the seat and the raised floor ; but a movable receptacle would favour easy and frequent scavenging. 3. The seat should be hinged so as to allow the ashes, &c. to be regularly thrown on to, and so mixed with, the excreta.
4. Slop and rain water should be rigidly excluded from the privy pit.
